Homework 9
Honors Physics

1. Add the following vectors graphically and algebraically:
   a. 23 m/s at 44° S of E
   b. 31 m/s at 68° S of W
   c. 14 m/s at 13° N of E.
2. A 300 N box is hanging by two rigid rods. The rod on the left has an angle of 25° between the ceiling and the rod (see picture from yesterday), and the rod on the right is hanging straight down. What is the force on each rod?
3. A 45 kg object is hanging by two rigid rods. The rod on the left has an angle of 56° between the ceiling and the rod, and the rod on the right has an angle of 83° between the ceiling and the rod. What is the force on each rod?
4. A boat travels due west at 5.9 m/s, and there is also a 3.1 m/s current to the north acting on the boat. The river is 100 m wide.
   a. How long will it take the boat to cross the river?
   b. How far downstream will it end up from where it started?
5. A 12.1 kg box is sliding down a ramp that is angled 29° above the horizontal. If the coefficient of friction between the box and ramp is 0.22, what is the box's acceleration down the ramp?